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New Discoveries in a Nabataean Tomb. Burial Practices and 'plant Jewellery' in Ancient Hegra (Madâ'in Sâlih, Saudi Arabia)

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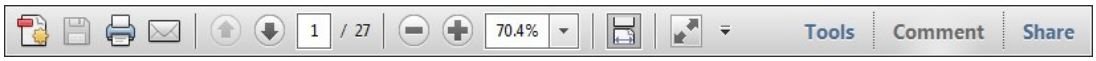

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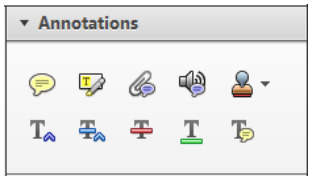

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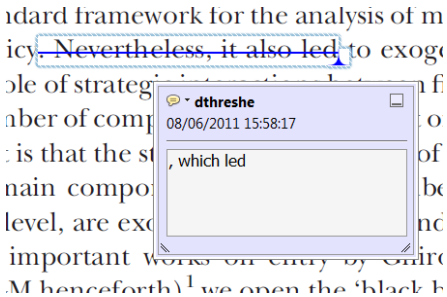

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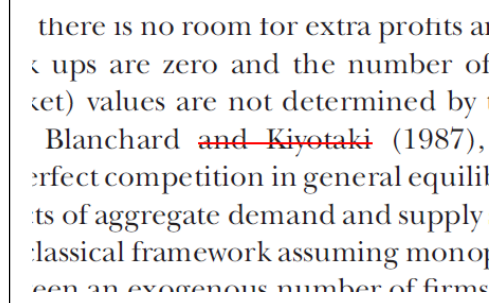

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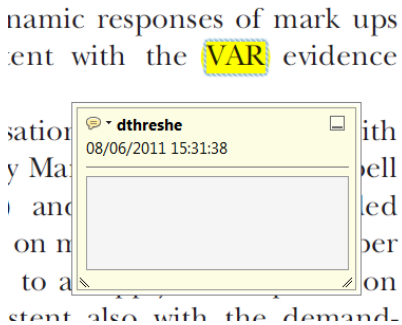

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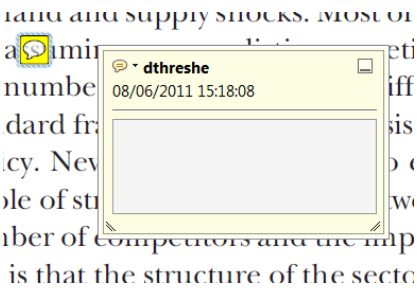

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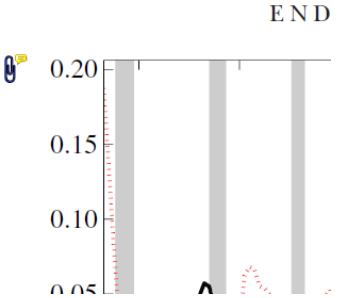

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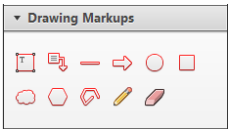

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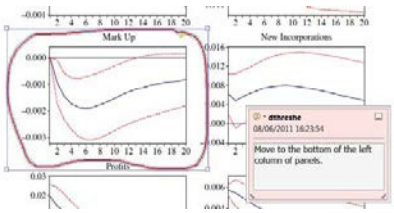

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Arabian archaeology and epigraphy

New discoveries in a Nabataean tomb. Burial practices and 'plant jewellery' in ancient Hegra (Madâ'in Sâlih, Saudi Arabia)

The excavation of tomb IGN 117 in Madâ'in Sâlih, ancient Hegra, in Saudi Arabia, produced a large amount of bones, objects and materials (leather, fabric, fruit, wood, amorphous organic substances) of the Nabataean-Roman period (first to early fourth century AD). Two pieces of fabric and leather are of particular interest because they contained pierced dates (*Phoenix dactylifera*) strung together using date-palm leaflets. These exceptional discoveries are poorly attested in Near Eastern funerary contexts. Together with other data from Madâ'in Sâlih, the southern Near East and Egypt, this interdisciplinary analysis leads to the reconstruction of part of the funerary practices related to the preservation and preparation of the body that occurred in tomb IGN 117. Finally, the analysis allows the questioning of the symbolic role of plant jewellery and the date palm in a funerary context.

Keywords: funerary practices, 'plant jewellery', date palm, Nabataean-Roman period, Arabian Peninsula

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1. Introduction

Madâ'in Sâlih, ancient Hegra, is located in north-western Saudi Arabia, in a large, arid sandy plain. Occupied since the fourth–third century BC (Charloux 2011: 31) until at least the fourth century AD (Nehmé *et al.* 2006: 53; Stiehl 1970), the site was most densely inhabited in the Nabataean period, between the first century BC and the first century AD. During this period, the town was at the southern limits of the Nabataean kingdom, on the route between Petra and Arabia Felix (Fig. 1). The work of the Franco-Saudi project, directed by L. Nehmé, F. Villeneuve and D. al-Talhi, has revealed the existence of a residential area that was continuously inhabited until the end of antiquity (Nehmé *et al.* 2006; Nehmé, al-Talhi & Villeneuve 2011). Monumental tombs with decorated facades were carved into the sandstone cliffs of varying steepness surrounding the residential area. The architectural and epigraphic studies, together with the stratigraphic analysis of the excavated tombs and the radiocarbon dates of several bones, show that these tombs were used particularly during the Nabataean and Roman periods, between the first and early fourth centuries AD (Delhopital & Sachet 2009, 2010, 2011). Despite heavy looting, parts of the buried bodies and associated artefacts were preserved. The arid climate of the region and the closed environment of the burial chambers have preserved the archaeological material in a way that is not often attested in the Near East: this material comprises human organic remains (skin, hair), textiles, leather, wood, seeds and fruits (Bouchaud, Sachet & Delhopital 2011). Among the many archaeological finds, two large pieces of intertwined leather and textile from tomb IGN 117 (50083_T01 and 50240_L02) were of particular interest because they contained fragments of a necklace of desiccated dates (*Phoenix dactylifera*). Examination of these discoveries led to the reconstruction of a type of funerary practice hitherto unseen in Nabataea.

1.1. *Tomb IGN 117*

Tomb IGN 117 is carved into the eastern slope of Jabal al-Ahmar, to the south-east of the residential area of

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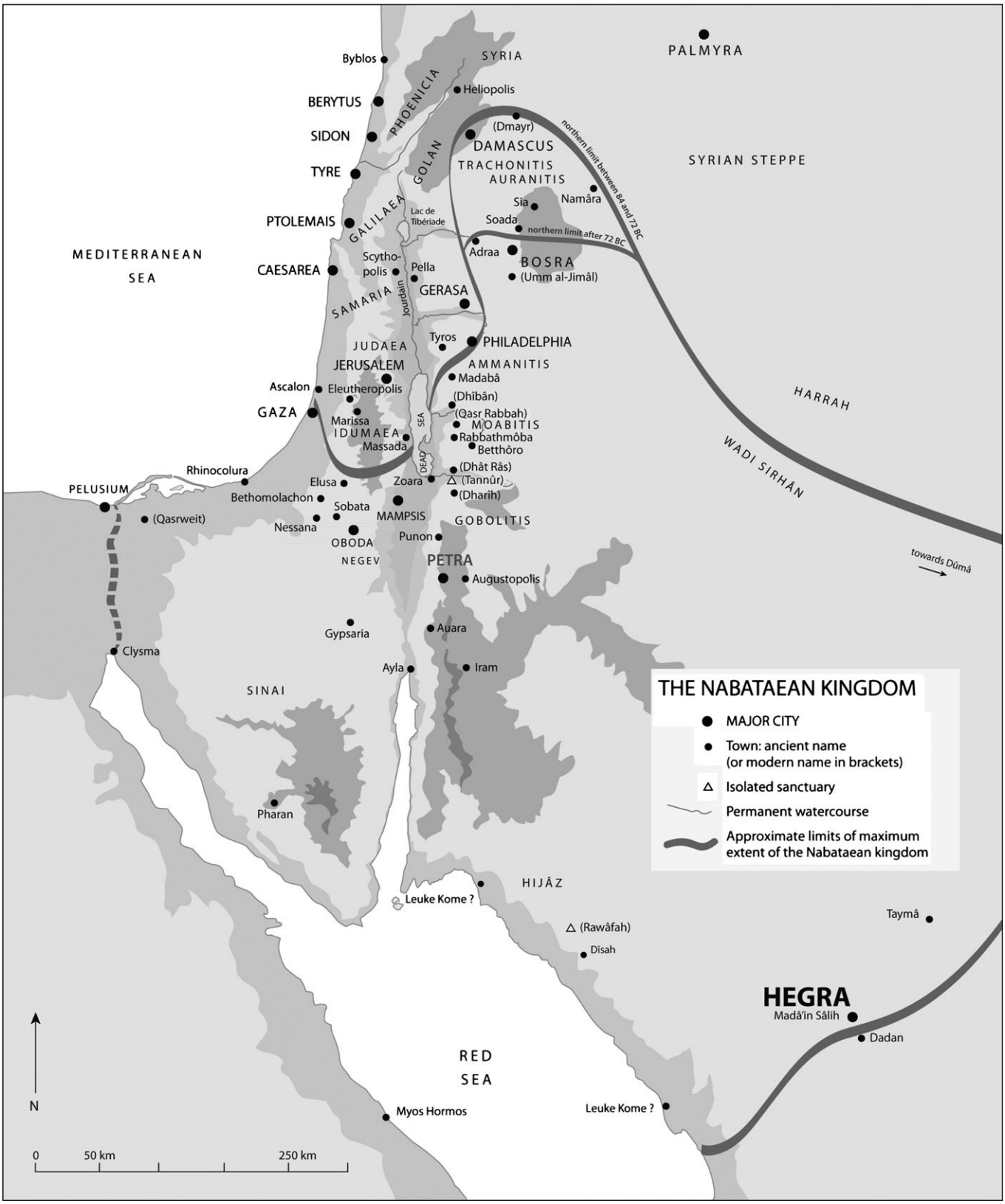

Fig. 1.
A map of the Nabataean kingdom.

ancient Hegra (Fig. 2). It was chosen for excavation among the hundred or so facade tombs at the site because the floor of its chamber was still covered with sand and its ceiling was intact, with no signs of infiltration (Delhopital & Sachet 2009: 169). Its facade (Fig. 3) is 5 m high, making it the smallest facade of the nine tombs carved in the eastern slope of Jabal al-Ahmar. As with the majority of Nabataean tombs in Petra (Brünnow & Domaszewski 1904), its top is composed of two superimposed rows of crowsteps. The carvings above the door, three fluted vases and an eagle with open wings are, by contrast, characteristic of the Hegra tombs. A frame with a Nabataean inscription, also above the door, mentions the name of the owner, Hînat daughter of Wahbû. The text is dated AD 60/61 (Jaussen & Savignac 1997: Nabataean inscription no. 26).

The burial chamber is 5.20 m deep by 4.82 m wide and 2.70 m high. A pit 1 x 2 m and 1.35 m deep was cut into the floor near the north-west corner. Analysis of the bones showed that eighty individuals were buried on the floor of the chamber, in excavation areas A, C and D, and in the pit, Area B (Fig. 4). This pit was also used as a dump for bones from the floor of the chamber. These bones were poorly preserved in the pit, as were the few pieces of wood, and no fabric or leather was found in it. Area C, in the south-east corner of the chamber, contained the burials of three individuals *in situ*, one of which was juvenile, and a few pieces of fabric and leather. In the north-east corner, the bones of Area D, although well preserved, were not articulated, and no fragments of wood, leather or fabric were found in the sandy fill.

The dated inscription, the stratigraphy, the finds and the radiocarbon dates all indicate that the chamber was largely occupied for funerary purposes in the first century AD, then more sporadically until the late third–early fourth century. The burial chamber was disturbed several times, firstly when burials were pushed aside to make way for new burials, and secondly, after it was abandoned, when it

Fig. 2.
Jabal al-Ahmar from the north-east.

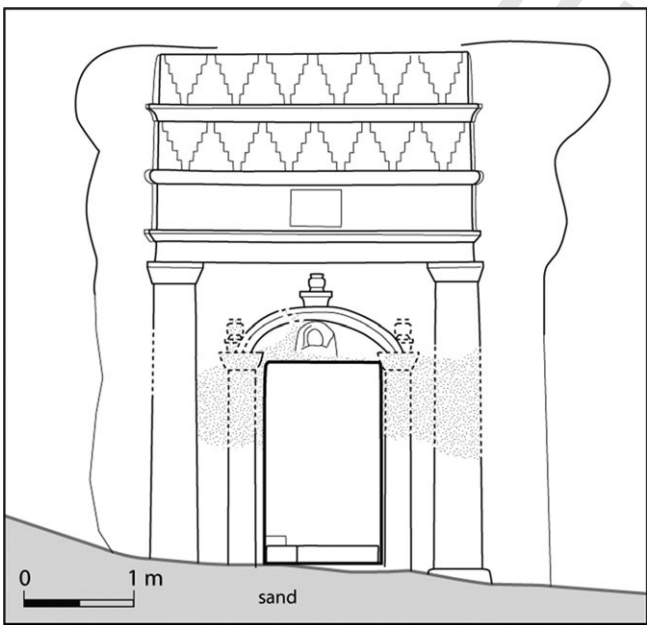

Fig. 3.
The facade of tomb IGN 117 (drawing J.P. Braun & J. Humbert).

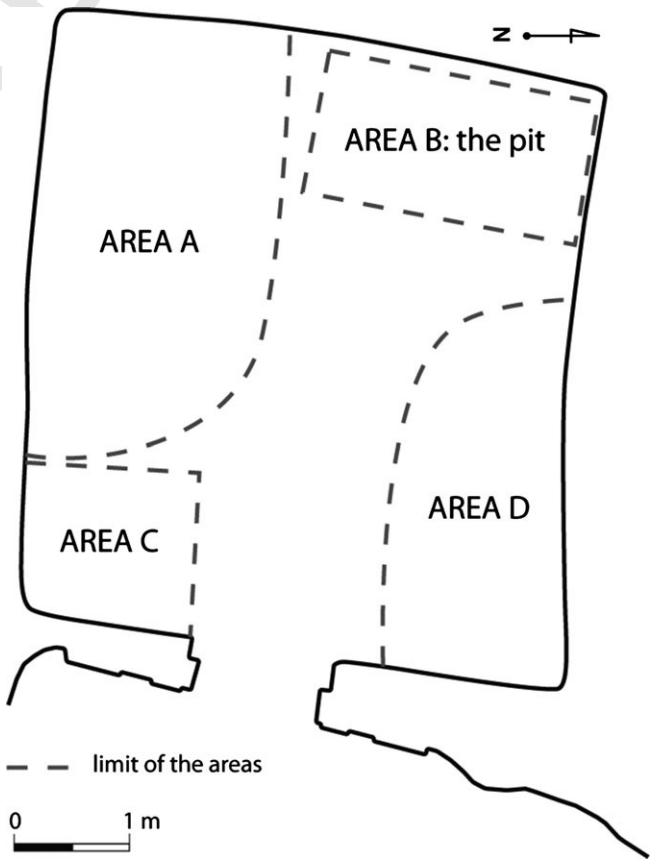

Fig. 4.
The excavation areas in tomb IGN 117.

was looted, probably in order to take the valuables. As a result, the bones and finds were found mixed up on the chamber floor and in the pit, which complicated the archaeological analysis (Delhopital & Sachet 2009, 2010, 2011).

1.2. Area A

The main burial phase is in Area A, in the south-west part of the burial chamber (Fig. 4) and is dated to the first century AD. It is in this area that the organic material is the richest and best preserved. Two wooden coffins were placed on the floor of the chamber (Fig. 5). Coffin 1 was used for at least four inhumations (one adult and three juveniles), while coffin 2 contained few bones, which could not be attributed to a precise number of individuals. Bones, fabric, leather and wood were found above, around and, more rarely, under the coffins. This distribution is no doubt the consequence of rearrangements after the inhumations, which scattered the bones and materials originally contained in the coffins. The funerary pieces presented below came from loci 50083 and 50240, which were, respectively, to the south and above the coffins, but it is not impossible that these pieces originally came from inside one of the two coffins and that they were displaced following later rearrangements. Locus 50083 was a sandy layer below a layer of aeolian sand and rested directly on the bedrock and against the south wall. It produced five skulls, some fabric, some leather and fragments of wood that possibly belonged to the coffins (Fig. 6). Locus 50240 was about 2 m to the north of locus 50083 and partly covered the two coffins (Fig. 7). It also produced many pieces of textile and leather. The north-east–south-west slope observed during the excavation suggests that material in locus 50240 could have slipped down towards locus 50083. The association of material from the two layers is internally consistent since the nature and quality of the archaeological material is identical.

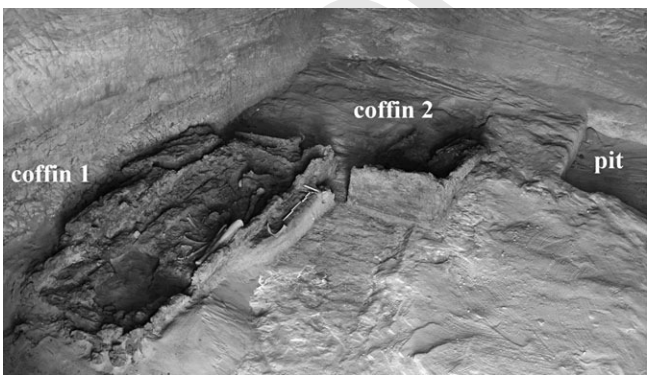

Fig. 5.
The two coffins in Area A in tomb IGN 117.

Fig. 6.
Locus 50083 and item 50083_T01 (white arrow).

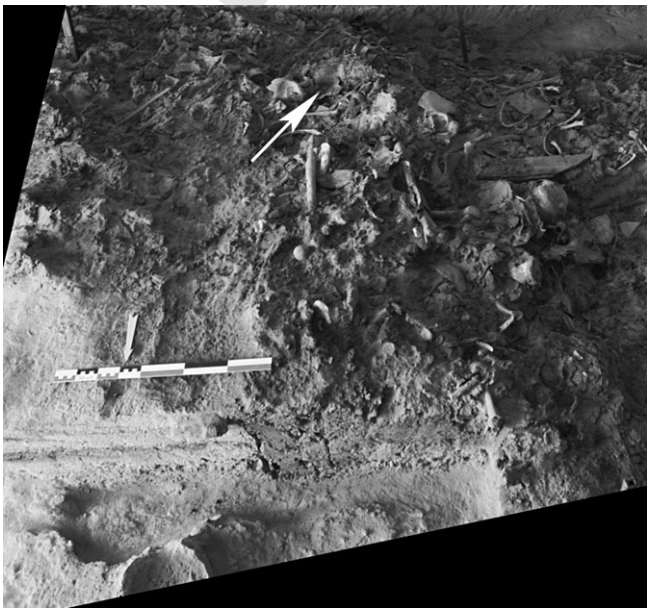

Fig. 7.
Locus 50240 and item 50240_L02 (white arrow).

2. Items 50083_T01 and 50240_L02

Items 50083_T01 and 50240_L02 are composed of superimposed layers of leather and fabric impregnated with a black amorphous organic substance in the centre of which were found several dates strung together. Item 50083_T01 (Fig. 8) is generally cylindrical in shape, with a circumference of 54 cm and a minimum height of 32 cm. The contours of the folds in the fabric and leather,

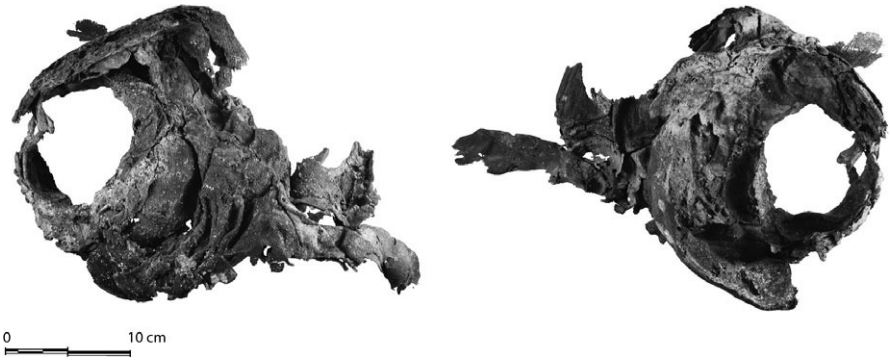

Fig. 8.
Exterior view (left) and interior view (right) of item 50083_T01.

Fig. 9.
Detail of item 50083_T01 showing the strands of hair, the superimposition of some red fabric and the organic substance.

in which the negative of a face can be discerned, along with the presence of some strands of hair (Fig. 9), show that these are wrappings that covered the head of an individual (Fig. 10). Item 50240_L02 is an elongated shape, 34.5 cm long, 9 cm wide and 4.5 cm thick. The inside part conforms to the negative of a right arm (Figs. 10 and 11).

The two pieces are composed of superimposed layers of fabric and leather exactly like two other items found in the same tomb. The two pieces described here, however, are remarkable because of the presence, inside both, of plant items that constitute a necklace of dates. The pieces are presented here in the presumed order in which the different constituent materials were placed on the bodies.

2.1. The dates

Item 50083_T01 has four dates wedged near the bulge in the fabric and leather, which probably corresponds with the back of the neck (Fig. 8, right, and Fig. 12). In addition, imprints of three dates can be observed and two additional dates seem to be hidden under the black organic

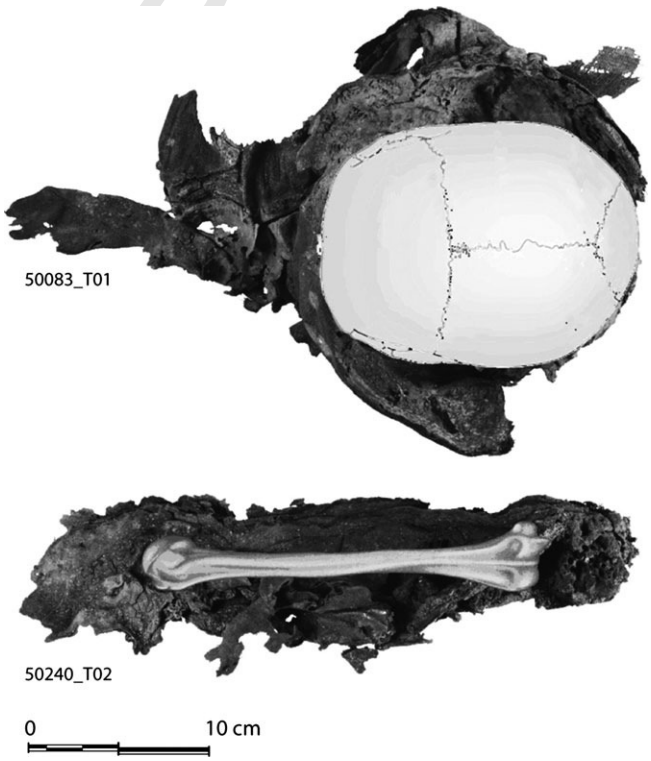

Fig. 10.
Assumed position of the two items under study (drawing R. Douaud).

matter (Fig. 12).[1] In item 50240_L02 five dates are embedded in the folds of the fabric (Fig. 13). The first three are aligned in parallel to the axis of the negative of the arm and the other two curve gently in the direction of what must have been the location of the torso. In both items, the plant matter used to string the dates together

[1] Identification of the black organic material is discussed in the interpretation section below.

Fig. 1.
Exterior view (left) and interior view (right) of item 50240_L02. Some dates are visible (black arrow).

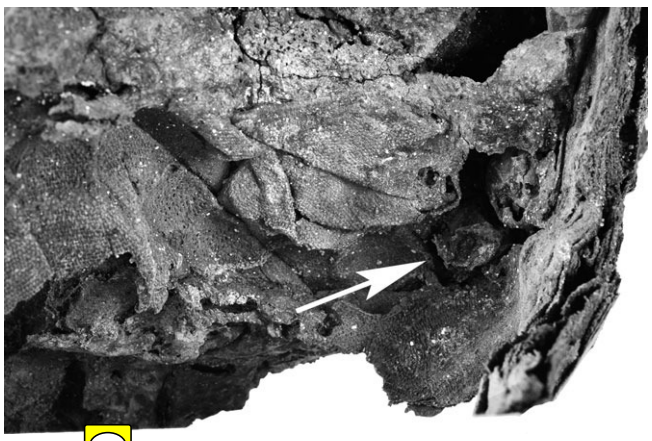

Fig. 12.
Detail of item 50083_T01; two dates and one imprint are visible in the folds of the fabric and leather.

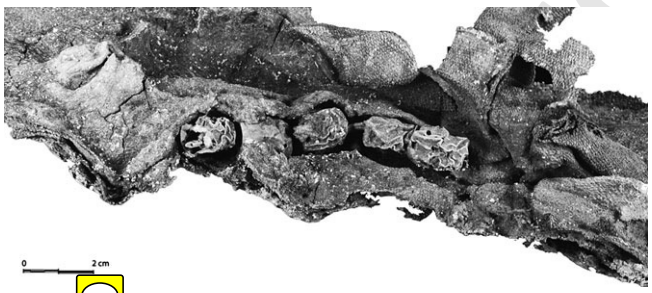

Fig. 13.
Detail of item 50240_L02 and the five dates.

was composed of fragments of date-palm leaflets (parts of a leaf),[2] a slight twist linking the leaflets together. The alignment of the fruits, the presence of a string and the association of the discoveries with different upper parts of a human body (neck and arm) leads to the interpretation of these elements as fragments of a necklace.

The fruits are well preserved, wrinkled, very dry and brittle, sometimes covered in a black substance. They are all pierced by a hole about 2 mm in diameter through which the palm leaflet passes. The dates that could be handled are between 15 and 17 mm long and 8–10 mm wide. On both items, the first layer of fabric is ~~crseased~~ at the level of the necklace, creating an empty space that is bigger than the fruits themselves. This probably implies that the dates were bigger at the time of the inhumation, no doubt more fleshy, but there is no way of telling whether the dates were fresh or dried at the time of the assembly—and deposition—of the necklace. Two isolated, pierced dates were found in the sediment in the same excavation area, which are most probably parts of necklace(s). One of these dates was cut (Fig. 14), revealing the stone (11 x 4 mm). It is asymmetrical in shape, the ends are twisted and the ventral groove is enlarged. These distortions might be due to superficial piercing of the stone along its length, along the ventral groove, in order to thread the plant string (Fig. 15). The combined effects of time and desiccation must also have contributed to the distortion of the stones and fruits.

2.2. *Textile and dye analyses*

There were three layers of fabric on each of the two items, and all three were plain weave,[3] the simplest of the textile weaves. The first, that covers the body, is a fine hair fabric (sheep, goat or camel), and is dyed red (Fig. 9). It is covered by a second fabric, less tightly woven, of raw linen, which in turn is covered by a third thick fabric, also of raw linen. This last layer of fabric is in contact with the leather. The thread counts[4] for the three fabrics are more or less the same for both items (Table 1). Between the layers of fabric, there is the same blackish substance that covered

[2] The identification of date-palm leaflets was made as a result of the microscopic examination of the anatomical structure of the epidermis and the transversal section of two fragments.

[3] A weave (the way of interlacing warp and weft threads) whose weave unit is limited to two ends and two picks, the odd and even ends alternating in position at each pass of the pick thread above and below it.

[4] The thread count is the number of warp and/or weft threads in 1 cm.

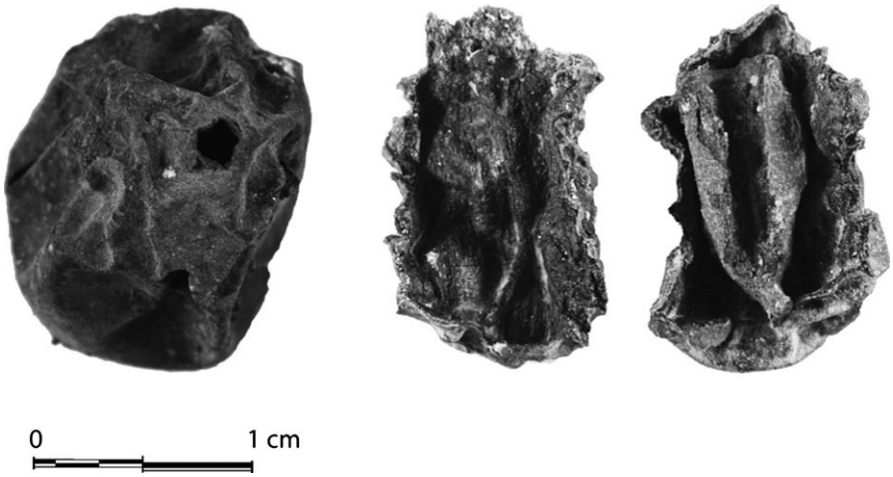

Fig. 14.
Desiccated and pierced dates found in the sediment. On the left, locus 50083, viewed from the top. On the right, locus 50298_VS01 cut in half, viewed in profile.

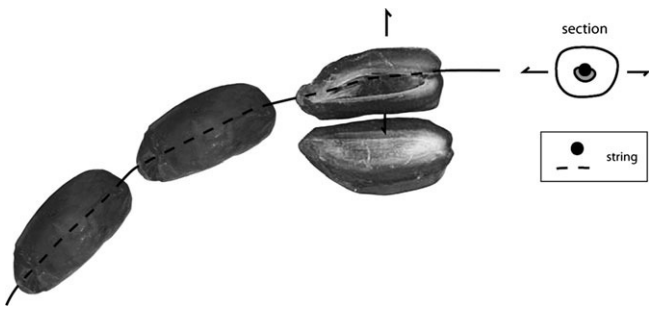

Fig. 15.
Sketch showing how the dates were strung (drawing I. Sachet).

the dates, congealed in layers of varying thickness (from 0.1 to 1 cm). It is present in large quantities on both items, particularly on the interior face of the red fabric 50083_T01, in other words, in contact with the body (Figs. 9 and 12, see the interpretation section below). Macroscopic observation, using a binocular microscope, of the red fabric from both items 50083_T01 and 50240_L02 shows that the two textiles do not have the same shades of red colour, a difference also shown by the chemical analysis of the dyes used for colouring them. This analysis was done by high-performance liquid chromatography after extraction of dyes from fibres (Bonose *et al*. 2011; Nowik *et al.* 2005). Both extracts from red fabrics 50083_T01 and 50240_L02 display a series of compounds from the anthraquinone chemical group. Among them, aloe emodin and rhein as well as other anthraquinones are present in similar semi-quantitative proportions in both samples. These compounds are mainly present in plants from the Polygonaceae family, such as sorrel (*Rumex* sp.) or rhubarb (*Rheum* sp.) (Cardon 2014: 101–109). The analysis of the red fabric 50083_T01 also reveals the presence of alizarin and purpurin. They are characteristic of the dyestuff from the Rubiaceae family and are mainly present in common madder (*Rubia tinctorum*), although other plants of the same family, such as bedstraws (*Galium* sp.), may contain them (Sanyová 2001: 163–165). According to these results, it is possible that the two red fabrics 50083_T01 and 50240_L02 were dyed in the same workshop with the same plant from the Polygonaceae family. Subsequently, only the fabric 50083_T01 was over-dyed with Rubiaceae plant dyestuff.

2.3. Leather

A layer of leather, mainly visible on item 50240_L02, covers the three layers of fabric described above. The leather is very thin (about 0.8 mm thick) and of very good quality. It comes from meticulously tanned sheep or goat leather. It

Table 1. Technical description of the three types of fabric attested in items 50083_T01 and 50240_L02.

Textile	Nature	Twist	Thread count for item 50083_T01	Thread count for item 50240_L02
Interior fabric	Animal hair	S	warp: 11 weft: 28	warp: 12 weft: 28
Intermediate fabric	Linen	S	Poor state of preservation	warp: 12 weft: 14
Exterior fabric	Linen	S	warp: 8 weft: 8	warp: 6 weft: 7–8

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is brittle, probably due to its prolonged contact with the organic substance covering the fabric. Its surface shows irregular concavities, located perpendicularly or obliquely in relation to the presumed alignment of the arm (Fig. 11, left). These are probably the negatives of leather straps, which have since disappeared. These impressions, of which there are seven, are distributed irregularly: five are on the upper part of the arm, and after a 10 cm-gap there are two more widely separated impressions on the lower part of the arm. Their presence is clearly evidence of a tight binding of the fabric and leather wrapping. The orientation of the folds seen on the surface of the leather suggest that this binding was started at the top of the arm—which was encircled five times—then continued down the arm with two more turns.

3. Interpretation

3.1. An example of funerary practices from tomb IGN 117

Despite the fragmentary nature of the two items under study, a review of the details observed allows the partial reconstruction of the corresponding funerary dressing, with a few prior points of clarification.

Firstly, it is not possible to determine from these finds whether the two items, 50083_T01 and 50240_L02, belonged to the burial wrapping of one and the same individual. The fact that the different materials are juxtaposed in the same fashion in both cases is not a definitive argument since many finds, from tomb IGN 117 and other tombs on the site (Delhopital & Sachet 2009: 168–172; 2010: 211–212, 217) present the same arrangement. In the same way, the fact that the two items were found 2 m apart does not necessarily mean that they belonged to two different individuals since similar displacements are sometimes noted in the tomb between the bones—and by extension the wrappings—of the same individual. The presence of dates in the two items is, in the end, the main argument in favour of them belonging to the same individual, while the use of two different sources of red dyestuff, from Polygonaceae and Rubiaceae plant families, calls for a certain degree of caution, because it possibly suggests two different fabrics. Two hypotheses are possible: either the two differently dyed fabrics were used to wrap two separate individuals, each wearing a necklace of dates, or the two fabrics were perhaps sewn together and used for just one deceased.

Secondly, the element that requires some clarification is the black substance, found occasionally on the dates, fabrics and leather of items 50083_T01 and 50240_L02, as well as on numerous other fragments of fabric in tomb IGN 117. Macroscopic observations show a great similarity with four other fragments of substance sampled on pieces of fabric found in two other tombs excavated at Hegra, IGN 20 and IGN 87. The chemical composition of these samples was studied using gas chromatography and mass spectrometry. The analyses showed the presence of a mix of fatty acids and triterpenic compounds probably from vegetable oil, and of an elemi resin from the Burseraceae family. Based on the chemical markers and on ecological criteria, it can be supposed that the elemi resin in tombs IGN 20 and 87 in Hegra comes from the genus *Canarium* (Mathe *et al.* 2009). Following the discovery of *Canarium* sp. in the perfume vases in the baths in Bosra, in southern Syria (Blanc & Garnier 2009), this constitutes the second archaeological attestation of this plant matter, which grows naturally in the tropical regions of South Asia and Africa (Jansen *et al.* 1991; Langenheim 2003: 356–357). It is possible that the black substance observed on the two items studied is the result of the same mixture of vegetable oil and elemi resin but it is difficult to determine whether only the fabric was impregnated—the substance would then have spread onto the body—or if the body itself was coated with it. The concentration of the substance between the layers of fabric tends towards the first hypothesis. The presence of impregnated fabric wrapping the bodies is probably linked to the desire to ensure a better or longer preservation of the body.

The two items presented in this article, as well as the other finds discovered in tomb IGN 117, allow a few general comments to be made on the treatment of the dead at the time of burial. The three superimposed layers of fabric noted several times probably represent shrouds and there are no pieces of fabric or leather, which might suggest the presence of clothes. The desire to use a different quality of fabrics was noted: the layer in contact with the body is always the finest. In addition, the fibres are either animal or plant, usually linen but sometimes cotton (Bouchaud, Tengberg & Dal Prà 2011: 412). Furthermore, bands of fabric have often been found separately in the tombs. They are between 2 and 3 cm wide, made of raw linen and of louisine weave,[5] composed of single S-twisted threads. They clearly represent pieces of strapping. A few scattered fragments show that these straps could be crossed over,

[5] Louisine weave (also called extended tabby) is derived from plain weave in which the warp threads are grouped in twos or more.

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then probably knotted around the textile shrouds (Dal Prà 2012: 12).

The good state of preservation of some of the pieces of leather in Area A of the burial chamber allows the reconstruction of rectangular panels assembled with seams of tight stitching to form shrouds. The number of panels needed to make these shrouds, as well as their finished size, is not known, but they must have been big enough to wrap the body of the deceased (Leguilloux 2012: 13). Numerous leather straps—most of which are twisted and without seams—measuring 2–3 cm wide, were found scattered in the sediment. The fact that these have remained supple suggests that they were not in contact with the black substance found on the leather shrouds. These straps probably served to keep together the layers of textile and leather around the corpse, and the negative impressions that they left are visible on item 50240_L02 (Fig. 11). Observations made on other pieces confirm that these straps were generally placed perpendicularly or obliquely to the length of the body. Some are crossed over at shoulder level (2012: 14). Other leather objects, also found in Area A of tomb IGN 117, seem to have been used to transport the wrapped body. They consist of fragments of sheep or goat leather, which look like chamois leather; they have no black substance, are of lighter colour and are thicker (between 1 and 1.2 cm) than the shrouds. They are rectangular in shape, often decorated and sometimes provided with carrying handles (2012: 14–15).

Taken together, the information gathered allows a reconstruction of the inhumation of the individual(s) associated with items 50083_T01 and 50240_L02 (Fig. 16): the deceased is naked but wears a long, loose necklace of dates that comes down the front of the torso. The body is wrapped in three fabric shrouds, the first very fine made of animal hair, the other two of linen, impregnated with an organic substance probably aimed at the preservation of the body. All this fabric is held together with linen straps. The fourth shroud is of leather, encloses the body and is held together with leather straps. Finally, the body is placed in the last, open, wrapping of decorated leather that is used as a stretcher to move the body to its final resting place. The stretcher is left at the burial site and perhaps acts as the outermost shroud.

3.2. Originality and parallels from Nabataean territories and Egypt

3.2.1. The wrapping items

The use of fabric and leather shrouds has already been found in Nabataean-Roman funerary contexts in the southern Near East, dated from the first to fourth centuries AD. The best examples are Jordanian, from the cemeteries of Khirbat adh-Dharih, to the north of Petra (Lenoble, Al-ʿMuheisen & Villeneuve 2001), and the cemetery of Khirbat Qazone to the east of the Dead Sea (Politis 1998; Politis, Kelly & Usman 2005). At Khirbat adh-Dharih, fragments of fabric and leather were found in the collective funerary monument C1. All the fabric studied was linen and was represented by three types (plain, louisine and basket weave[6]), but the fragments were too small to determine whether they were used as clothing or shrouds. Brittle fragments of leather came from different items including large wrappings, and straps and braids for transportation or for fastening the deceased (see the study by R. Boyer in Lenoble, Al-ʿMuheisen & Villeneuve 2001: 117–121). The textiles from Khirbat Qazone comprise wool fabric, some linen and one piece of cotton (Granger-Taylor 2000: 155), some of which are red (Fields 2003). The majority of these pieces are from tunics or capes, showing that the deceased were dressed when they were buried (Granger-Taylor 2000: 151–155; 2007: 302). Most of the shrouds are of leather. Only one fabric shroud was found, made of linen (Granger-Taylor 2000: 161).

These examples thus show both similarities (leather shrouds at both Khirbat adh-Dharih and Khirbat Qazone, wrapping straps at Khirbat adh-Dharih) and differences (presence of clothing at Khirbat Qazone) with those of Hegra. Also, neither Khirbat adh-Dharih nor Khirbat Qazone showed any indication of the use of resinous substances on the fabric. This practice, however, find parallels in Egypt. It is mentioned by Herodotus, who describes the use of bands of impregnated fabric during the mummification ritual (*History* II.86–89), and field observations have found evidence of the use of various substances of vegetal and mineral origin for the preservation of bodies (Bruyère & Bataille 1937: 158) or for sticking together the different layers of fabric making up the clothing of the mummy (Aufderheide *et al.* 2004: 65–67; Ménager, Perraud & Vieillescazes 2013: 8). The example from tomb IGN 117 thus illustrates a funerary practice known from the same period in Egypt, but which has been unknown in Nabataean territories until now. This practice highlights the care taken of the deceased and the need to ensure the good preservation of the body through the application of mummification procedures (Delhopital & Sachet 2010: 222, figs. 58–59).

[6] Basket weave is derived from plain weave in which both warp and weft threads are grouped in twos or threes.

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COLOR

Fig. 16.
Suggested reconstruction of an inhumation in tomb IGN 117. Wrapping (top) and carrying (bottom) (drawing R. Douaud). The genders attributed to the body and the pallbearers are arbitrary.

3.2.3. The date necklaces: symbol of the object and of the date palm

Attestations of jewellery made of plant material in funerary contexts in the Near East are extremely rare (with the exception of Egypt, see below). The effects of time and the far from ideal conditions of preservation of organic materials are probably the main reasons. Indeed, plant motifs are commonly used for funerary ornaments in the

Table 2. List of date necklaces found in Egypt, taken from the scientific literature and the identification of which has been verified. Key: CF = Agricultural Museum (Dokki, Cairo); BB = Botanical Museum Berlin-Dahlem (Germany).

Chronology	Origin	Museum no.	Published references
Dynasty XVIII (1550–1292 BC)	Deir el-Medina	CF no. 1418	Täckholm & Drar 1950: 220
After Dynasty XXII (first millennium BC)	Saqqara	CF no. 1965 (= 3284); Antiquity Department donation (1936)	Täckholm & Drar 1950: 221 Germer & Hamdy 2007: 189
Greco-Roman (fourth c. BC–fourth c. AD)	Arsinoe*	BB no. 282	Germer 1988: chap. 12
Coptic (fifth–seventh c. AD)	Antinopolis	CF no. 2788; University of Florence excavation	Täckholm & Drar 1950: 223
	Antinopolis	CF no. 2789; University of Florence excavation	Täckholm & Drar 1950: 223

*Arsinoe refers to several Egyptian towns. The exact origin is therefore unknown.

ancient Near East, as shown for instance by the golden headdress from the Royal Cemetery at Ur, lower Mesopotamia (Miller 2000) and there is no doubt that real plant material may have been used too. Carbonised perforated halves of small apples, as well as broken date stones and other plant remains were discovered in a tomb in the same site. They probably correspond to food offerings as they were found in various saucers (Ellison *et al.* 1978). The only examples of 'plant jewellery' in the Nabataean-Roman territories are found on the site of Hegra itself (Bouchaud, Sachet & Delhopital 2011). Tomb IGN 20 produced pierced desiccated seeds of *Prunus* cf. *arabica* and colocynth (*Citrullus colocynthis*). They were not found in direct association with fabric or leather, but their presence in burial pits leaves no doubt as to their funerary use. Three colocynth seeds are strung together with a thread of plant fibre and were probably part of a necklace or bracelet (2011: 14–16, figs. 10 and 12). Most of the comparable material comes from Egypt, where the dry climate and the closed environments have preserved these fragile objects. Seeds and fruits were used to make necklaces less frequently than flowers and leaves, but the former are regularly attested in Egyptian funerary practices, particularly in the New Kingdom (second half of the second millennium BC) and during the Greco-Roman and Coptic periods (third–second centuries BC to sixth century AD). For example, a necklace made of barley seeds (*Hordeum vulgare*) was found around the neck of a mummy at Gournah, dating to the New Kingdom, as well as mandrake (*Mandragora officinalis*) and Withania nightshade (*Withania somnifera*) fruits in necklaces in the tomb of Tutankhamun and fruits of the Rose of Heaven (*Silene coeli-rosa*) held together by a thread in a Roman tomb of Hawara (Hamdy 2007: 117–119, 125).

Date necklaces in a funerary context are described several times in the scientific literature (Germer 1988: chap. 12; Täckholm & Drar 1950: 218–223), but are rarely illustrated (see Germer 1988: chap. 12). Recently, it was possible to examine some of those exhibited in the Agricultural Museum in Cairo.[7] Five date necklaces from the New Kingdom and the Greco-Roman and Coptic periods are clearly identified (Table 2).

Three of them are made up of small, most probably immature, fruits (CF no. 1965, BB no. 282, CF no. 2788). Another was made of dates with no stones; their appearance suggests that these might be parthenocarpic, in other words, dates that had reached maturity without being fertilised (CF no. 2789). The oldest necklace, from Deir al-Medina, is the only one composed of mature dates, like those in tomb IGN 117 in Hegra, which shows that people resorted to these practices in different periods in quite separate cultural spheres with no known connections. Nevertheless, in contrast to the examples from Hegra, the fruits from Deir al-Medina are pierced in the vertical axis and the thread has disappeared (CF no. 1418). The stringing noted on all but one of the other Egyptian examples of date necklaces is of linen thread; the one exception (CF no. 1965) uses date-palm leaflets. It is known that small cords of this date-palm fibre were regularly used to assemble and tie necklaces, garlands and bunches of plants composed of various flowers and leaves found in funerary contexts in the New Kingdom and in the Greco-Roman period (Barakat & Baum 1992: 13–24; Fahmy, Galan & Hamdy 2010: 77–80; Hamdy 2007: 115, 118–125; Manniche 1989: 32; Thomas, Tengberg & De Franceschi 2013: 97). In summary, these discoveries show the variety of elements of date palm that were used in funerary contexts in Egypt, occasionally in the New Kingdom and more widely in antiquity and late antiquity; these elements include flower buds, flowers, leaves, fruits at various stages of maturity and unfertilised fruits (Barakat & Baum 1992: 13–24; Fahmy, Galan & Hamdy 2010: 77–80; Germer

[7] The examination of these necklaces was carried out in February 2014. We would like to thank Rim Hamdy (University of Cairo) for helping us to access these collections.

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1988, chap. 12; Hamdy 2007: 115, 118–125; Täckholm & Drar 1950: 218–223; Thomas, Tengberg & De Franceschi 2013: 95–97). Unfortunately, the context of discovery for all the examples of date necklaces is unknown, or at least not known with enough precision to determine whether the necklace was hung around the neck of the deceased on or beneath the fabric, or simply placed by the side of the body.

To the best of our knowledge, the only archaeological examples of date necklaces are all associated with funerary contexts, but modern comparisons from non-funerary contexts abound. In the mid-twentieth century, for example, V. Täckholm and M. Drar noted that the habit of stringing young, green dates was common among children who wandered under the palm trees in Egyptian villages, and that dates strung into necklaces were used as presents in the Sudan and in Mecca (Täckholm & Drar 1950: 220). In the Tabelbala oasis, in the Algerian-Moroccan Sahara, dates are placed in amulets hung on necklaces offered to newborn babies in the community since 'dates, synonymous with abundance, prosperity and multiplicity, carry a beneficial power' (Champault 1956: 198).

The presence of 'plant jewellery' on both sides of the Red Sea in antiquity does not demonstrate the existence of influences between Egyptian and Nabataean cultural spheres. Nevertheless, it sheds light on the symbolic role of the date palm in funerary contexts in a way that, until now, had attracted less attention from researchers than has more sumptuous funerary apparel. The central role played by the date palm in funerary and religious contexts in Egypt and the Middle East has already been highlighted, especially through material and iconographic evidence (Bénichou-Safar 2012; Ellison *et al.* 1978; Méry & Tengberg 2009; Michel-Dansac & Caubet 2013; Miller 2000). The plant is generally perceived as a symbol of fertility and femininity (Bénichou-Safar 2012: 112–115; Michel-Dansac & Caubet 2013: 10–12, Miller 2000: 153–154). In Mediterranean regions far from the known areas of production, the date palm is also a recurring motif in iconographic traditions (Michel-Dansac & Caubet 2013: 4–5) and the fruit is regularly found in ~~carbonised assemblages linked to Roman cremations~~ (Bouby & Marinval 2004: 81–82; Matterne & Derreumaux 2008: 109–110).

The discoveries from tomb IGN 117 contribute to the increasingly accurate definition of the symbolic role of the date palm in a region where its economic status is recognised. In Hegra, and generally in the Arabian Peninsula and in Greco-Roman Egypt, dates were a common fruit, easily accessible and widely cultivated in the oases.[8] Archaeobotanical analyses carried out on different areas of excavation in Hegra have indicated the strong presence of the date palm as the main plant in the oasis, from the earliest occupation of the site until its abandonment. They have also demonstrated its use as food, fuel and as a material for use in crafts and architecture (Bouchaud 2013: 15–16). In addition, the discovery of whole, desiccated date stones, found on the very floor of a rock-cut *triclinium* used by Nabataean religious brotherhoods demonstrates its consumption in what were probably cultic contexts (Bouchaud 2011: 345–346; 2013: 16). Thus, at Hegra as elsewhere, the date palm was of great economic and symbolic importance and played a role both among the living and the dead.

In tomb IGN 117, all the data tend to show that the body or bodies associated with the two items studied here were the object of particular care and thus were most likely notables. Nonetheless, the jewellery chosen was simple, easy to make from local materials and certainly did not have any ostentatious function. The date jewellery accompanied the deceased in death and is evidence of one of the principal agricultural products of the ancient oasis of Hegra, thereby evoking abundance, opulence and security.

4. Conclusion

In spite of the fragmentary and disparate nature of the discoveries made in tomb IGN 117, an interdisciplinary approach has allowed the reconstruction of a part of the funerary practices that occurred in the Nabataean-Roman period. The deceased, probably naked but for a necklace of dates, was wrapped in fabric and leather shrouds. It is possible that this type of necklace was worn by more than one body in the tomb. So far, this practice is unique to Hegra and the Arabian Peninsula. The use of other plant jewellery is attested in at least one other tomb at Hegra (IGN 20), by pierced seeds of *Prunus* cf. *arabica* and colocynth, but no other examples are known in the southern Near East, perhaps due to poor conditions of preservation of organic materials. The material recovered in two other tombs in Hegra in 2014, which has not yet been studied, will show whether the assemblage of worked leather, fab-

[8] Whether the date palm was imported to Egypt in an earlier period, prior to the first millennium BC, or was already introduced —i.e. cultivated—is still an open question (Newton *et al.* 2013: 10).

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ric and plant matter occurs elsewhere on the site. The rare discoveries of fabric and leather on other Nabataean sites are evidence of a certain similarity of materials used (shrouds for wrapping and transportation), but the diversity in quality and decoration, and the absence of the resinous substance other than in Hegra show that the choices made by the living to bury their dead were different from one site to another within the same political region. The results of the work currently underway on the amorphous organic materials will also provide new information regarding choices of materials, their provenance and use, and will shed new light on funerary practices that are ~~so far~~ little known in the Arabian Peninsula and for which the only comparisons, so far, are found in Egypt.

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